

**CAMPYLOBACTER GLYCOSYLTRANSFERASES FOR  
BIOSYNTHESIS OF GANGLIOSIDES AND GANGLIOSIDE MIMICS**

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**ABSTRACT OF THE DISCLOSURE**

This invention provides prokaryotic glycosyltransferases, including a bifunctional sialyltransferase that has both an  $\alpha$ 2,3- and an  $\alpha$ 2,8-activity. A  $\beta$ 1,4-GalNAc transferase and a  $\beta$ 1,3-galactosyltransferase are also provided by the invention, as are other  
10 glycosyltransferases and enzymes involved in synthesis of lipooligosaccharide (LOS). The glycosyltransferases can be obtained from, for example, *Campylobacter* species, including *C. jejuni*. In additional embodiments, the invention provides nucleic acids that encode the glycosyltransferases, as well as expression vectors and host cells for expressing the glycosyltransferases.

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